AYK REGION
YUKON RIVER ESCAPEMENT REPORT # 16

Yukon River Stream Catalog

Informational Manual

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Preface

This manual is intended for use with the Yukon River Stream Catalog, a listing of documented salmon spawning escapements from 1953 through 1981. The primary purpose of the stream catalog is presentation of data for the entire Yukon River drainage, including that portion within the Canadian boundary. No attempt has been made to present analysis of data relative to its ultimate or intended use. A description of the area, data collection methods, and fishery resources is included in this manual only to the extent required for interpretation of data presented in the stream catalog.

Data in the stream catalog are intended to be final; however, revisions will be made as historic records are uncovered, subsequent data acquisition occurs, or errors are found. It should be emphasized that escapement information in the stream catalog DOES NOT necessarily represent total salmon escapement for any given stream, but rather is an index of abundance. Further, it is imperative that all remarks be carefully read (when they appear) for any given entry to insure proper interpretation of data.

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Introduction

Quantifiable information on salmon spawning escapements in the Yukon River drainage has been available since 1953. The United States Fish and Wildlife Service (FWS) collected escapement data from a few selected Alaskan summer chum and king salmon tributary streams in the lower Yukon River (below Koyukuk) and Fairbanks vicinity from 1953 through 1959, the year of statehood for Alaska. During this period (1955), the FWS also conducted reconnaissance surveys of several spawning streams in the upper Yukon River drainage in Yukon Territory, Canada.

Limited escapement information, primarily pertaining to king salmon, collected by the Environment Canada Fisheries Service (ECFS) has been available since 1958, the year of construction of the Whitehorse dam and fishway.

Since 1959 the Alaska Department of Fish and Game (ADFG) has been the lead agency in collecting escapement data from Alaskan streams in the Yukon River drainage and has assisted the ECFS in collecting escapement data from tributaries in the Canadian portion of the drainage since the late 1960's.

Aerial survey observations have provided most of the data presented in the stream catalog. However, an attempt has been made to include all quantifiable escapement observations made from ground (foot) and boat surveys, counting tower and weir projects, and more recently sonar counting projects. In addition, verbal and written reports documenting the unquantifiable occurrence of salmon in streams where the ADFG has not documented spawning are also included, along with the data source. Escapement estimates and observations presented in the stream catalog DO NOT represent total salmon escapement for any given year. This is discussed more fully under "Methods of Escapement Enumeration."

Area Description

The State of Alaska has described the Yukon area, for purposes of regulatory fisheries management, to include all waters of the Yukon River and its tributary streams in Alaska and all coastal waters from Canal Point near Cape Stebbins southward to Naskonat Peninsula (Figure 1). The Yukon River is the largest river in Alaska, draining approximately 35 percent of the state, and is the fifth largest river in North America. The river originates in British Columbia, Canada, within 30 miles of the Gulf of Alaska, and flows more than 2,300 miles to its mouth on the Bering Sea, draining an area of approximately 330,000 square miles. Major spawning tributaries in the Yukon River drainage are illustrated in Figures 2 through 13.

Methods of Escapement Enumeration

The Yukon River is too extensive for complete escapement coverage during any given year. Consequently, low-level aerial surveys from single-engine, fixed-wing aircraft have been the primary method used to obtain escapement information. Aerial stream assessment has intensified (number of streams surveyed per year) with increased funding in recent years (since about 1970), which in turn has increased our knowledge of distribution of the salmon species throughout the Yukon River drainage. Escapement estimates are presently made of as many spawning streams as possible within the confines of fiscal constraints. However, an effort is made to insure representative or "index" streams are surveyed annually to examine trends in escapement abundance.

Accuracy of aerial survey data can be highly variable and is dependent upon a number of factors such as weather and water conditions, timing of survey with respect to peak spawning, type of aircraft, experience of both pilot and observer, and species of salmon being enumerated. Consequently, the surveyor attempts to subjectively evaluate each survey by rating it as poor, fair, or good, based upon weather, water, and other criteria described in the code section of the catalog. It is generally recognized that aerial escapement estimates are lower than actual salmon escapement due to inherent weather and water dependency by the observer, even when survey conditions are optimal. Further, spawner residence time for any given stream or species has not been considered to attempt to estimate actual spawning estimates. Gangmark and Fulton (1952), Bevan (1961), and Neilson and Geen (1981) have shown that peak spawning abundance, measured by aerial survey methods, is usually significantly lower than the actual seasonal stream population of spawners.

Escapement information throughout the Yukon River drainage has also been obtained by limited ground (foot) and boat surveys, counting towers, weirs, and, more recently, by side-scanning sonar. In view of the size of the Yukon River drainage and cost associated with operating intensive spawning enumeration studies, these projects have been relatively few in number, e.g., the Andreafsky, Anvik, Melozitna, Sheenjek, Fishing Branch, Salcha, and Delta rivers and Whitehorse fishway.

Population estimates have also been made for various salmon species and portions of the river drainages. Population estimates in this report are based upon tag recovery studies and documented harvests, plus observed escapements. Accuracy of tag recovery estimates is often questionable, due to the following biases which cannot be quantified: tag loss; post-tagging mortality; unreported tag loss; fishing-gear selectivity on tag types and fish age, sex, and size; and disproportionate tag and recovery effort on various stocks, substocks, or run segments. Further, estimates of run magnitudes based on documented catches and observed escapements are minimal since many spawning streams cannot be surveyed in any given year.

Fishery Resources

All five species of Pacific salmon are indigenous to the Yukon River drainage, with chum salmon being the most abundant. King salmon, coho salmon, pink salmon, and sockeye salmon are estimated to follow in order of abundance.

Chum salmon spawn throughout the Yukon River drainage, and two major stock groupings are recognized: summer chum salmon and fall chum salmon. Differences between the two are based chiefly on morphological characteristics and run timing. Summer chum salmon are characterized by an early run timing (early June to mid-July), rapid maturation in fresh water, smaller size (average 6-7 pounds), and larger population size than fall chum salmon. They spawn primarily in runoff tributaries of the lower Yukon River drainage and in some tributaries to the Koyukuk and Tanana rivers. Comparative escapement data on summer chum salmon is, at best, limited to only three streams (Andreafsky, Anvik, and Salcha rivers) prior to 1974. This data base has expanded to 10 streams since 1974 (Table 1).

Fall chum salmon are distinguished by a later run timing (mid-July to early September), robust body shape and bright silvery appearance (delayed maturation in fresh water), larger size (average 7-8 pounds), and smaller population size. Fall chum salmon primarily spawn in the upper Yukon River drainage (including the Tanana River) in areas that are spring fed, which usually remain ice free during the winter.

Very little information regarding the abundance and distribution of fall chum salmon was available prior to 1972. Since that time, by expanded aerial escapement surveys, the Tanana and Porcupine River systems have been identified as two of the most important in terms of fall chum salmon production. Comparative escapement data are available for selected tributaries of these two river systems from 1973 through 1981 (Table 2). Important spawning areas documented in the Canadian portion of the drainage include the Kluane River.

King salmon are the largest species, averaging 20-25 pounds (commercial fishery gillnet samples), and the most widely distributed in the Yukon River drainage. Spawning king salmon have been documented in the Archuelinguk River located 85 miles from the mouth of the Yukon River and as far upstream as Nisutlin Lake outlet in the Yukon Territory of Canada, 1,892 miles from the mouth. Major spawning streams in Alaska include the Andreafsky, Anvik, Nulato, Salcha, and Chena rivers. In the Canadian portion of the drainage, examples of important spawning streams include the Little Salmon, Big Salmon, Nisutlin, and Ross rivers and Tatchun Creek. The data base for comparative king salmon escapements has increased from about four streams during the period 1960 through 1970 to 12 index streams since 1971 (Tables 3 and 4).

Coho salmon enter the Yukon River during late July through mid-September, average 7 pounds in weight, and spawn discontinuously

throughout the drainage. Comparative coho salmon escapement information is available only from the Tanana River drainage and dates back to the early 1970's (Table 5).

Pink salmon enter the Yukon River during late June through mid-July, average approximately 3 pounds in weight, and essentially spawn in the lower portion of the drainage (downstream from the village of Grayling). The Andreafsky River supports the highest recorded escapements.

Sockeye salmon are extremely rare in the Yukon River. Although exact spawning areas have not been documented as yet by the ADFG, spawning has been reported in the Innoko River drainage by local residents.

Specific Catalog Information

The Yukon River Stream Catalog consists of four sections, each of which is discussed below.

Section 1 - Codes

The codes section contains an explanation of all codes used throughout the catalog. Information which has been coded includes the following:

1. Source of information for any given data entry, e.g., aerial (including aircraft type), foot or boat survey; weir, tower, sonar count; tagging study population estimate; literature review; personal interview; etc.

2. Weather and water conditions and other factors affecting data collection.

3. Agency and individual (when available) making observations.

4. USGS maps (scale 1:63,000) and Canada Energy, Mines, and Resources (CEMR) maps (scale 1:500,000) where the mouth of any given river or stream is located.

A list of rivers or streams which have alternate spellings or names, or are worthy of further clarification (e.g., whether a stream entry refers to a distributary, anabranch, side channel, etc.) is also included in this section.

Section 2 - Drainage Listings

There are three separate listings in this section to assist the reader in proper identification of any given stream for which escapement information is available. The listings will alleviate the confusion

which arises in the case where different streams may have a common name. Not all streams found listed in this section have been surveyed or have escapement information available.

1. Name (alphabetical) order--This listing is arranged in alphabetical order. The stream drainage and the latitude, longitude, and map where the location of the mouth of the stream is located are also given.

2. Geographical order--Streams are listed starting from the mouth of the Yukon River and proceeding in order upriver to the headwaters. The stream drainage and the latitude, longitude, and map where the location of its mouth can be found are also shown.

3. Longitudinal order--Streams are listed by longitude, starting from the east and proceeding to the west. In some cases the latitude and longitude must be examined to insure the correct stream is identified. An example is Eagle Creek. Two Eagle Creeks drain directly into the Yukon River, and the latitude and longitude must be examined to ensure correct stream identity.

In some cases all escapement information on a major parent tributary and its drainage is listed under the parent stream name. For example, all information on tributaries to the Anvik River (e.g., Yellow River and Otter Creek) is listed under Anvik River. All information on the east and west fork of the Andreafsky River is listed under Andreafsky River. In such cases, streams from which escapement information has been collected, but listed under a parent stream name, are clearly identified in the above listings and the reader directed to the parent stream under which the information is listed.

Section 3 - Survey Index

This section contains an alphabetical listing of streams in the Yukon River drainage and the year(s) for which data are available for each.

Section 4 - Stream Catalog

This section contains all escapement information available for streams in the Yukon River drainage. Only those streams for which some form of escapement documentation is available are listed, including those streams surveyed and in which no fish were seen. If a particular stream for which information is sought is not listed (in alphabetical order) in this section, the reader should refer to Section 2 to determine whether the stream in question is listed under a parent stream name. If so, and information is available for the stream in question, it will be found in this section under the parent stream name. An example is

Geiger Creek. The reader will note that Geiger Creek cannot be found listed in section 4. However, after the word Geiger Creek in the listings in section 2 are found the words "see Toklat River." Consequently, any information on Geiger Creek, if available, can be found in section 4 under Toklat River.

Frequently, the data source (e.g., report name and page number) is identified in the remarks, particularly when entries were obtained through a literature review and raw data were unavailable. Examples would include Whitehorse fishway counts, Fishing Branch River weir counts, and population estimates throughout the Yukon River drainage. An attempt has also been made to identify in the remarks when and where tagging occurred and, in the case of weir, counting tower, or sonar operations, the time of peak passage and duration of the run.

Literature Cited

Bevan, D. E. 1961. Variability in aerial counts of spawning salmon. Journal of the Fisheries Research Board of Canada 18:337-348.

Gangmark, H. A. and L. A. Fulton. 1952. Status of Columbia River blueback salmon runs, 1951. United States Fish and Wildlife Service Special Scientific Report Fisheries 74.

Neilson, J. D. and G. H. Geen. 1981. Enumeration of spawning salmon from spawner residence time and aerial counts. Transactions of the American Fisheries Society 110:554-556.

Listing of Yukon River Drainage Mileages

Location	Mileage from Mouth
NORTH MOUTH (APOON PASS)	
Kotlik	6
Hamilton	26
MIDDLE MOUTH (KWIKPAK, KAWANAK PASS)	
Choolunawick	16
Akers Camp	26
New Hamilton	34
SOUTH MOUTH (KWIKLUAK PASS)	
Mouth, Black River	-18
Flat Island	0
Sheldons Point	5
Tin Can Point	8
Alakanuk	17
Emmonak-Kwiguk (Kwiguk Pass)	24
Sunshine Bay	24
Aproka Pass (upstream mouth)	35
Kwikpak Pass (upstream mouth)	44
Head of Passes	48
Fish Village	52
Mouth Anuk River (Subdistrict 1/2 Boundary)	63
Patsys Cabin	71
Mountain Village	87
Old Andreafsky	97
Pitkas Point	103
Mouth, Andreafsky River	104
St. Marys	107
Pilot Station	122
Mouth, Atcheulinguk (Chulinak) River	126
Pilot Village	138
Marshall (Fortuna Ledge)	161
Upstream Mouth Owl Slough (Subdistrict 2/3 Boundary)	163
Ingrihak	170
Ohogamut	185
Kakamut	193
Russian Mission	213
Dogfish village	227
Paimuit	251
Mouth, Innoko River (South Slough)	274
Shageluk	328
Holikachuk	383
Holy Cross	279
Mouth, Koserefski River	286
Mouth, Bonasila River (Subdistrict 3/4 Boundary)	306

Listing continued.

Listing of Yukon River Drainage Mileages, cont.

Location	Mileage from Mouth
Anvik	317
Mouth, Anvik River	318
Grayling	336
Mouth, Thompson Creek	349
Blackburn	370
Eagle Slide	402
Mouth, Rodo River	447
Kaltag	450
Mouth, Nulato River	483
Nulato	484
Koyukuk	502
Mouth, Koyukuk River	508
Mouth, Gisasa River	564
Huslia	711
Mouth, Dakli River	755
Mouth, Hogatza River	780
Hughes	881
Mouth, Kanuti River	935
Alatna (Mouth, Alatna River)	956
Allakaket	956
Mouth, South Fork	986
Mouth, John River	1,117
Bettles	1,121
Middle Fork	1,141
Cold Foot	1,174
Wiseman	1,186
Bishop Rock	514
Prospect Point	519
Galena	530
Whiskey Creek	555
Mouth, Yuki River	562
Ruby	581
Mouth, Melozitna River	583
Horner Hot Springs	605
Kokrines	608
Mouth, Nowitna River	612
Birches	647
Kallands - Mouth of Illinois Creek (Subdistrict 4/5 Boundary)	664
Mouth, Tozitna River	681
Tanana Village	695
Mouth, Tanana River (Subdistrict 5/6 Boundary)	695
Manley Hot Springs	765
Mouth, Kantishna River	793
Mouth, Toklat River	838
Mouth, Sushana River	850
Mouth, Bearpaw River	887
Outlet, Lake Minchumina	959
Minto	835
Nenana	860
Mouth, Nenana River	860
Mouth, Wood River	894
Rosie Creek Bluffs	912
Mouth, Chena River (Fairbanks)	920
Mouth, Salcha River	965
Benchmark #735 Slough	991
Mouth, Little Delta River	1,000
Mouth, Delta Creek	1,014
Mouth, Clear Creek (Richardson-Clearwater)	1,015

Listing continued.

Listing of Yukon River Drainage Mileages, cont.

Location	Mileage from Mouth
Mouth, Shaw Creek	1,021
Mouth, Delta River (Big Delta)	1,031
Delta Junction	1,041
Mouth, Goodpaster River	1,049
Bluff Cabin Slough	1,050
Outlet, Clearwater Lake	1,052
Mouth, Clearwater Creek (Delta Clearwater)	1,053
Mouth, Gerstle River	1,059
Outlet, Healy Lake	1,071
Outlet, Lake George	1,086
Tanacross	1,128
Outlet, Tetlin Lake	1,188
Mouth, Nabesna River	1,210
Northway Junction	1,214
Mouth, Chisana River	1,215
Mouth, Sheep Creek	1,297
Rampart Rapids	731
Rampart	763
Mouth, Hess Creek	789
Mouth, Ray River	817
Highway Bridge - Pipeline Crossing	820
Mouth, Dall River	841
Stevens Village	847
Mouth, Hodzana River	897
Beaver	932
Mouth, Hadweenzic River	952
Mouth, Chandalar River (Venetie Landing)	982
Venetie	1,025
Fort Yukon	1,002
Mouth, Porcupine River	1,002
Mouth, Black River	1,026
Chalkyitsik	1,084
Mouth, Salmon Fork River	1,142
Mouth, Sheenjek River	1,054
Mouth, Coleen River	1,157
Mouth, Salmon Trout River	1,193
U.S.-Canadian Border	1,219
Old Crow	1,259
Fishing Branch River spawning area	1,600
Circle	1,061
Woodchopper	1,110
Mouth, Charley River	1,124
Mouth, Kandik River	1,135
Mouth, Nation River	1,166
Mouth, Tatonduk River	1,186
Mouth, Seventymile River	1,194
Eagle	1,213
U.S.-Canadian Border	1,224
Mouth, Fortymile River	1,269
Dawson	1,319
Mouth, Klondike River	1,320
Mouth, Sixty Mile River	1,369
Mouth, Stewart River	1,375
McQuesten	1,455
Stewart Crossing	1,491
Mayo	1,520
Mouth, Hess River	1,594

Listing continued.

Location	Mileage from Mouth
Mouth, White River	1,386
Mouth, Donjek River	1,455
Mouth Kluane River	1,541
Outlet Kluane Lake	1,587
Burwash Landing	1,595
Kluane	1,625
Fort Selkirk	1,477
Mouth, Pelly River	1,478
Pelly Crossing	1,410
Mouth, MacMillan River	1,442
Ross River	1,602
Minto	1,499
Mouth, Tatchun Creek	1,530
Carmacks	1,547
Mouth, Little Salmon River	1,583
Mouth, Big Salmon River	1,621
Mouth, North Big Salmon River	1,641
Mouth, South Big Salmon River	1,657
Outlet, Big Salmon Lake	1,714
Mouth, Teslin River	1,654
Roaring Bull Rapids	1,707
Johnson's Crossing (Outlet, Teslin Lake)	1,756
Teslin	1,780
Mouth Nisutlin River	1,788
Mouth, Sidney Creek	1,837
Mouth, Hundred Mile Creek	1,851
Mouth, McNeil River	1,887
Outlet, Nisutlin Lake	1,892
Outlet, Lake Laberge	1,679
Inlet, Lake Laberge	1,712
Mouth, Takhini River	1,718
Whitehorse	1,745
Mouth, M'Clintock River	1,769
Outlet, Marsh Lake	1,764
Outlet, Little Atlin Lake	1,788
Outlet, Atlin Lake	1,812
Atlin	1,844
Tagish	1,786
Outlet, Tagish Lake	1,788
Carcross (Outlet Lake Bennett)	1,810
Bennett	1,835

Table 1. Comparative Yukon River summer chum salmon aerial escapement surveys, 1974-1981.[a]

	1974	1975	1976	1977	1978	1979	1980	1981
Andreafsky River								
East Fork	3,215[b]	223,485	105,347	112,722	127,050	66,471	36,823[b]	--
West Fork	33,258	235,954	118,420	63,120	57,321	43,391	115,457	147,312[c]
Total	--	459,439	223,767	175,842	184,371	109,862	152,280	--
Anvik River Drainage								
Tower Count	201,277	601,880	237,851	162,614	166,102	37,457	--	--
Below Tower Site (includes tributaries)		211,130	168,315	100,240	85,237	280,537[c]	--	--
Above Tower Site (includes tributaries)		634,355	243,695	--	--	84,620	--	--
Subtotal	--	845,485	412,010	100,240	85,237	--	--	--
Total (best estimate of escapements, combined tower, sonar, aerial and boat surveys)	201,277	845,485	406,166	262,754	251,339	280,537[c]	492,676[c]	1,479,582[c]
Rodo River	16,137	25,335	38,258	16,118	17,845	--	--	--
Nulato River								
North Fork (including main river)	22,144	87,280	39,690	58,275	41,659	35,598	11,244[b]	--
South Fork	29,016	51,215	9,230	11,385	12,821	1,506	3,702[b]	14,348
Total	51,160	138,495	48,920	69,660	54,480	37,104	14,948	--
Gisasa River (Koyukuk R. drainage)	22,022	56,904	21,342	2,204[b]	9,280[b]	10,962	10,388	--
Hogatza River (Koyukuk R. drainage)								
Clear Creek	--	7,610	9,356	6,437	2,716	5,132	12,375	--
Caribou Creek	--	14,745	10,188	4,297	2,386	9,089	7,411	--
Total	--	22,355	19,544	10,734	5,102	14,221	19,786	--
Tozitna River	1,823	3,512	725[b]	761	2,262	--	580	--
Chena River	4,350[d]	2,702[d]	685	610	1,609	1,025	338[b]	3,500[b]
Salcha River	8,040[e]	7,573	6,474	677	5,405	3,060	4,140	8,500

[a] Only peak estimates are presented.
[b] Poor survey.
[c] Sonar estimate.
[d] Boat survey.
[e] Combined aerial and boat.

Table 2. Comparative Yukon River drainage fall chum aerial escapement estimates, 1973-1981.[a]

	1973	1974	1975	1976	1977	1978	1979	1980	1981
TANANA RIVER DRAINAGE									
Bear Paw River	1,530	2,996	1,657	--	--	--	--	--	--
Toklat River drainage									
Upper Toklat River[b]	6,957	34,310	42,418	35,224	25,000	35,000	107,593[c]	23,054	13,907
Lower Toklat River	--	--	35,867	2,000[c]	--	--	64,540	2,140	--
Subtotal Toklat R. drainage	6,957	34,310	78,285	37,224	25,000	35,000	172,133	25,194	13,907
Upper Tanana River drainage									
Benchmark #735 Slough	127[d]	1,450	--	336	1,270	1,705	2,714	1,900[e]	168[d]
Delta River	7,971	4,010	3,946[e]	5,526	17,925	10,051	8,125	4,637	22,375[e]
Upper Tanana River[f]	5,635	4,567	--	4,979	3,725	5,700	20,820	3,444	7,063
Bluff Cabin Slough	3,450	4,840	5,000[c]	3,197	6,491	5,340	6,875	3,190	6,120
Delta Clearwater Slough (Onemile Slough)	1,720	1,235	745[c]	1,552	1,900	475	3,850	885	632
Subtotal Upper Tanana R. drainage	18,903	16,102	9,691	15,590	31,311	23,271	42,384	14,056	36,358
SUBTOTAL TANANA R. DRAINAGE	27,390	53,408	89,633	52,814	56,311	58,271	214,517	39,250	50,265
PORCUPINE RIVER DRAINAGE									
Sheenjek River	1,175	40,507	78,060	12,023	20,506	14,610	41,140	13,027	69,043[g]
Black River drainage									
Salmon Fork River	--	444	1,517	0[d]	--	--	--	--	--
Kevenjik Creek	--	1,625	582	7[d]	--	--	--	--	--
Fishhole Creek	--	--	--	--	200[d]	--	--	31[d]	--
Subtotal Black R. drainage	2,069	2,099	7	200				31	--
Salmon-Trout River	--	6	350	20	--	--	--	--	--
Fishing Branch River (YT)	15,987[h]	32,525[h]	353,282[h]	13,450	32,500	15,000	44,080	20,319[d]	10,549[d]
SUBTOTAL PORCUPINE R. DRAINAGE	17,162	75,107	443,791	25,500	53,206	29,610	85,220	33,377	79,592

a All surveys rated fair-good unless rated otherwise. Only peak estimates listed.
b Includes following areas: Toklat River in vicinity of roadhouse, Shushana River, and Geiger Creek.
c Combined aerial and ground survey estimates.
d Poor or incomplete survey; very minimal and/or rough estimate.
e Foot survey.
f Richardson Highway bridge to Blue Creek.
g Sonar count.
h Weir count.

Table 3. Comparative Yukon River drainage king salmon escapements, 1959-1970.[a]

	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Andreafsky River												
East Fork		1,020	1,003	675[b]		867		361		380	231[b]	665
West Fork		1,220		762[b]		705	355[b]	303	276[b]	383	274[b]	574[b]
Total		2,240	1,003[b]	1,437		1,572	355[b]	664	276[b]	763	505	1,239
Anvik River		1,950	1,226				650[b]	638	336[b]	310[b]	296[b]	368
Nulato River												
North Fork (including main river)		483	376									
South Fork		273	167									
Total		756	543									
Gisasa River		300	266[b]									
Tozitna River		106[b]										
Chena River		132			137							6[b]
Salcha River		1,660	2,878	937		450	408	800		739	461[b]	1,882
Tatchun Creek								7[b]				100[b]
Little Salmon River										173	120	
Big Salmon River												
Big Salmon Lake-Scurvey Cr										413	77	362
Scurvey Cr - South Big Salmon Ri										414[b]	209[b]	308
Total										827[b]	286[b]	670
Nisutlin River Drainage												
Sidney Cr - 100 Mile Cr										407	105	615
McNeil Ri - Nisutlin Lake										84[b]		122
Wolf Ri (Wolf Lake-Red Ri)												71[b]
Total										491[b]	105[b]	808[b]
Whitehorse Dam (Fishway Counts)	1,054	660	1,068	1,500	484	587	903	563	533	414	334	625

[a] Data obtained from aerial surveys unless otherwise indicated. Only peak estimates are listed.
[b] Incomplete or poor survey conditions resulting in a very minimal count.

Table 4. Comparative Yukon River drainage king salmon escapements, 1971-1981[a].

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Andreafsky River											
East Fork	1,904	798	825		993	818	2,008	2,487	1,180	958[b]	5,343[f]
West Fork	1,682	582[b]	788	285	421	643	1,499	1,062	1,134	1,500	231[b]
Total	3,586	1,380	1,613	285[b]	1,414	1,461	3,507	3,549	2,314	2,458	5,574[b]
Anvik River Drainage											
Tower Count		1,104	517	471[b]	548	958	1,261	1,088	1,247		
Below Tower Site (includes tributaries)		68	96[b]		172[c]	198[c,d]	93	240	237		
Above Tower Site (includes tributaries		346	126[b]		190	98					807[g]
Subtotal		414	222[b]		362	296	93	240	237		
Total (best estimate of escapements, combined tower sonar aerial, and boat surveys)		1,172	613	471[b]	720	1,155	1,354	1,328	1,484	1,330	807[b]
Nulato River											
North Fork (including main river)				55	123	471	286	498	1 093	954	
South Fork				23	81	177	201	422	414	369	791
Total				78	204	648	487	920	1,507	1,323	791[b]
Gisasa River				161	385	332	255	45	484	951	
Tozitna River					202	42[b]	123	194		257	
Chena River	193[b,c]	138[b,c]	21	1,035[c]	316[c]	531	563	1,726	1,159	2,541	600[b]
Salcha River	158[b]	1,193	391	1,857	1,055	1,641	1,202	3,499	4,789	6,757	1,237
Tatchun Creek	130	97	99	192	175	52	150	200	150	222	133[e]
Little Salmon River	275	126	27[b]				171	330	489[b]	286[b]	670
Big Salmon River											
Big Salmon Lake-Scurvey Cr	200	112	23[b]		153				555	470	930
Scurvey Cr - vicinity Souch Cr		448	52[b]						77	1,098	1,481
Total	200[b]	560	75[b]	70[b]	153[b]	86[b]	316[b]	524	632	1,568	2,411
Nisutlin River Drainage											
Sidney Cr - 100 Mile Cr	650	237	36[b]		239	102	77	375	713	975	1,626
McNeil Ri - Nisutlin Lake	350	46	6[b]		84	50		109		400	168
Wolf Ri (Wolf Lake-Red Ri)	750	13			40[b]				183	477	395
Total	1,750	296	42[b]	150[b]	363[b]	152[b]	77[b]	484[b]	896[b]	1,852	2,189
Whitehorse Dam (Fishway Counts)	856	391	224	273	313	121	277	725	1,184	1,383	1,539

a Data obtained from aerial surveys unless otherwise indicated. Only peak estimates are listed.
b Incomplete or poor survey conditions resulting in a very minimal count.
c Boat survey.
d Also includes 94 kings observed in Yellow River.
e Foot survey.
f Sonar estimate.
g Above sonar site.

Table 5. Comparative Yukon River drainage coho salmon aerial escapement estimates, 1971-1981.[a]

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Nenana River											
Lost Slough	--	--	--	1,388	943	118	524	350	227	499	274
Clear Creek	--	--	--	--	--	13	--	--	--	--	--
Wood Creek	--	--	--	--	--	--	310	--	--	--	170[b,c]
Seventeenmile Slough	--	--	--	27	956	281	1,167	466	1,987	592	1,005
Subtotal Nenana River	--	--	--	1,415	1,899	412	2,001	816	2,214	1,091	1,449
Delta Clearwater River	3,000[d]	632[d,e]	3,322[d]	3,954[d]	5,100[d,e]	1,920[d,e]	4,793[d,e]	4,798[d,e]	8,970[d,e]	3,946[d,e]	8,563[d,e,f]
Clearwater Lake and Outlet	--	417	551[d]	560	1,575[d,e]	1,500[d,e]	730[d,e]	570[d,e]	1,015[d,e]	1,545[d,e]	459[g]
Richardson Clearwater River	--	454[g]	375[d]	652[d]	4[g]	80[g]	327	--	372	611	550

a Peak estimates presented only.
b Surveyed by F.R.E.D.
c Foot survey.
d Surveyed by Sport Fish.
e Boat survey.
f Population estimate.
g Poor survey.

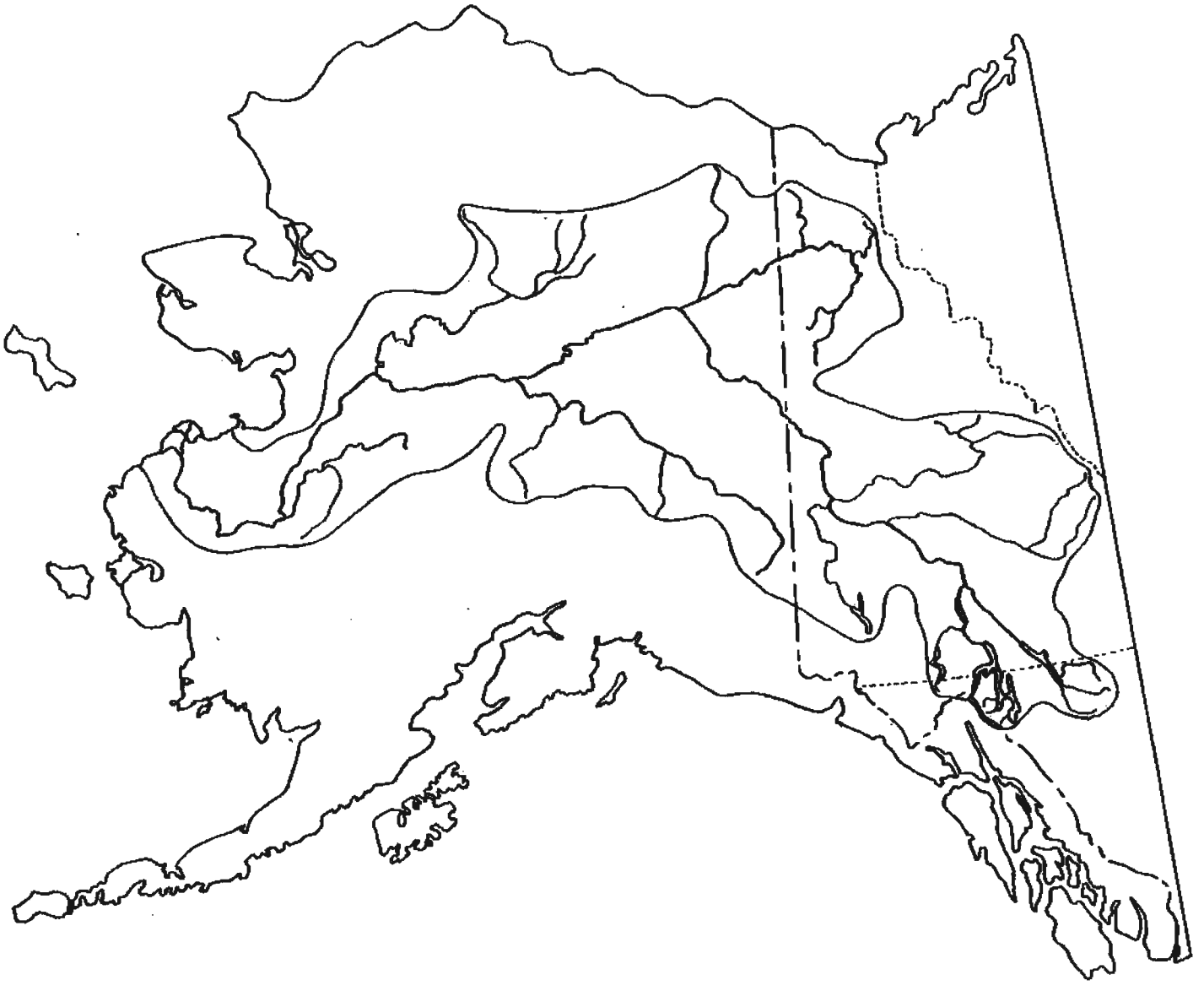

Figure 1. The Yukon River drainage, 330,000 square miles.

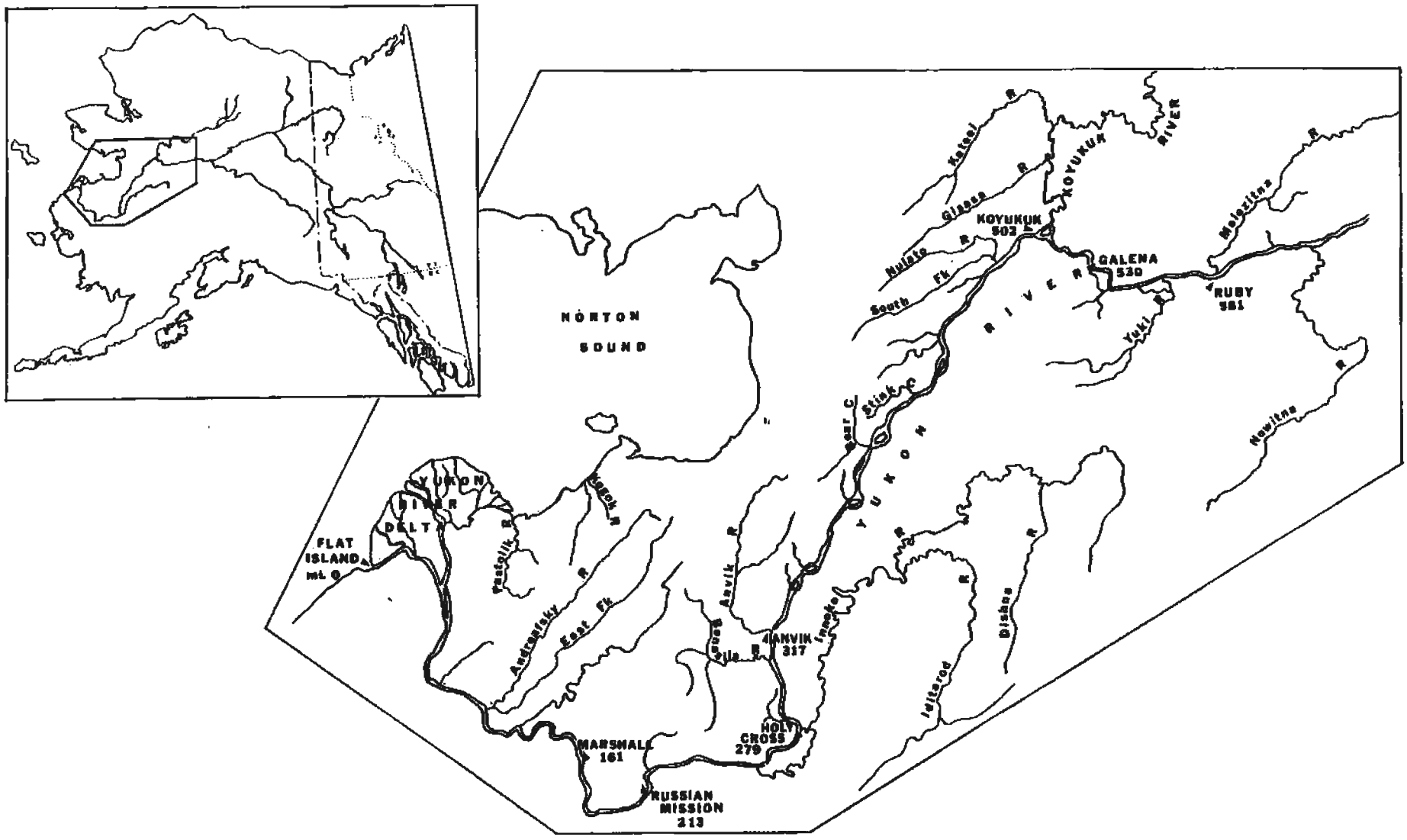

Figure 2. The lower Yukon River drainage.

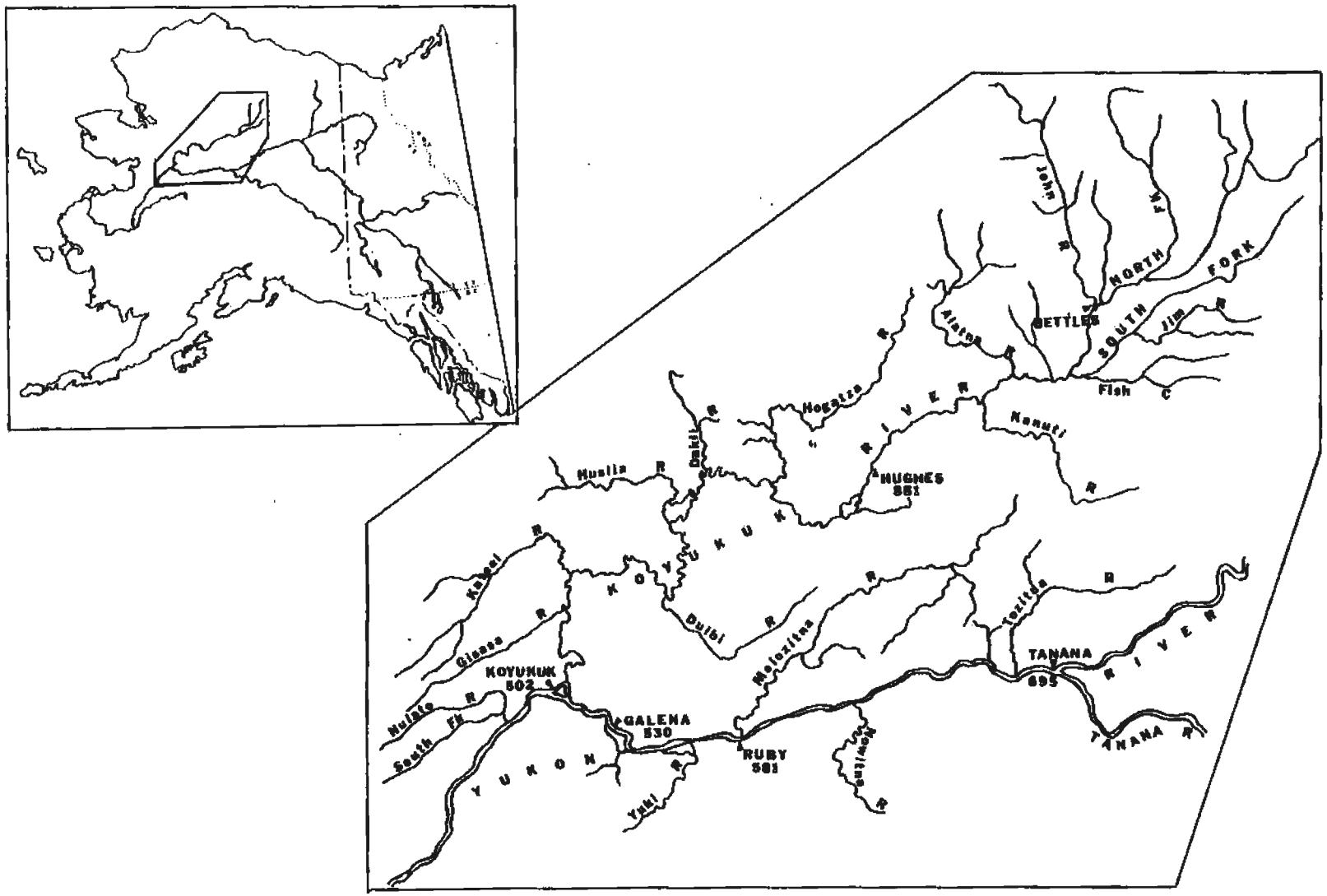

Figure 3. The Koyukuk River drainage.

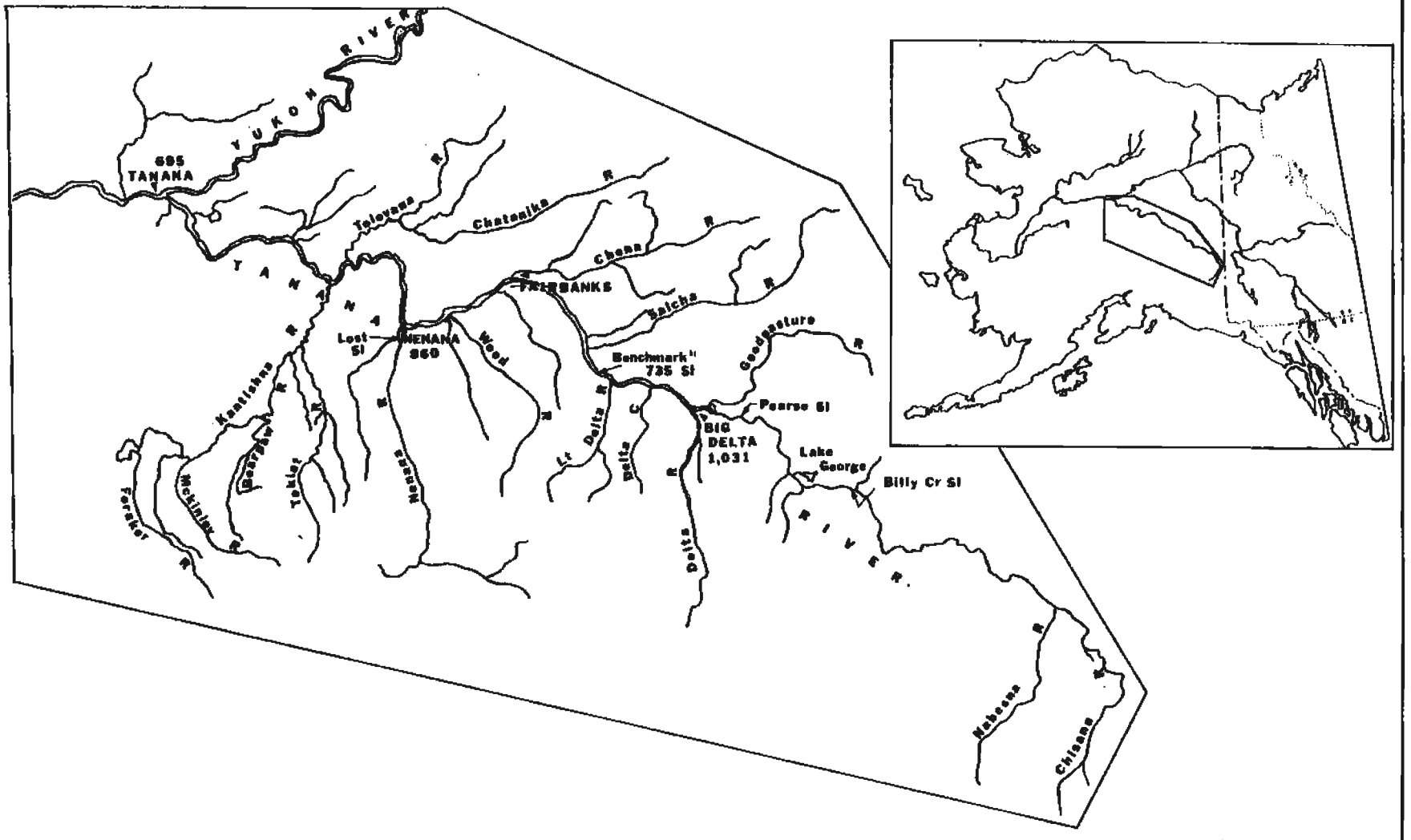

Figure 4. The Tanana River drainage.

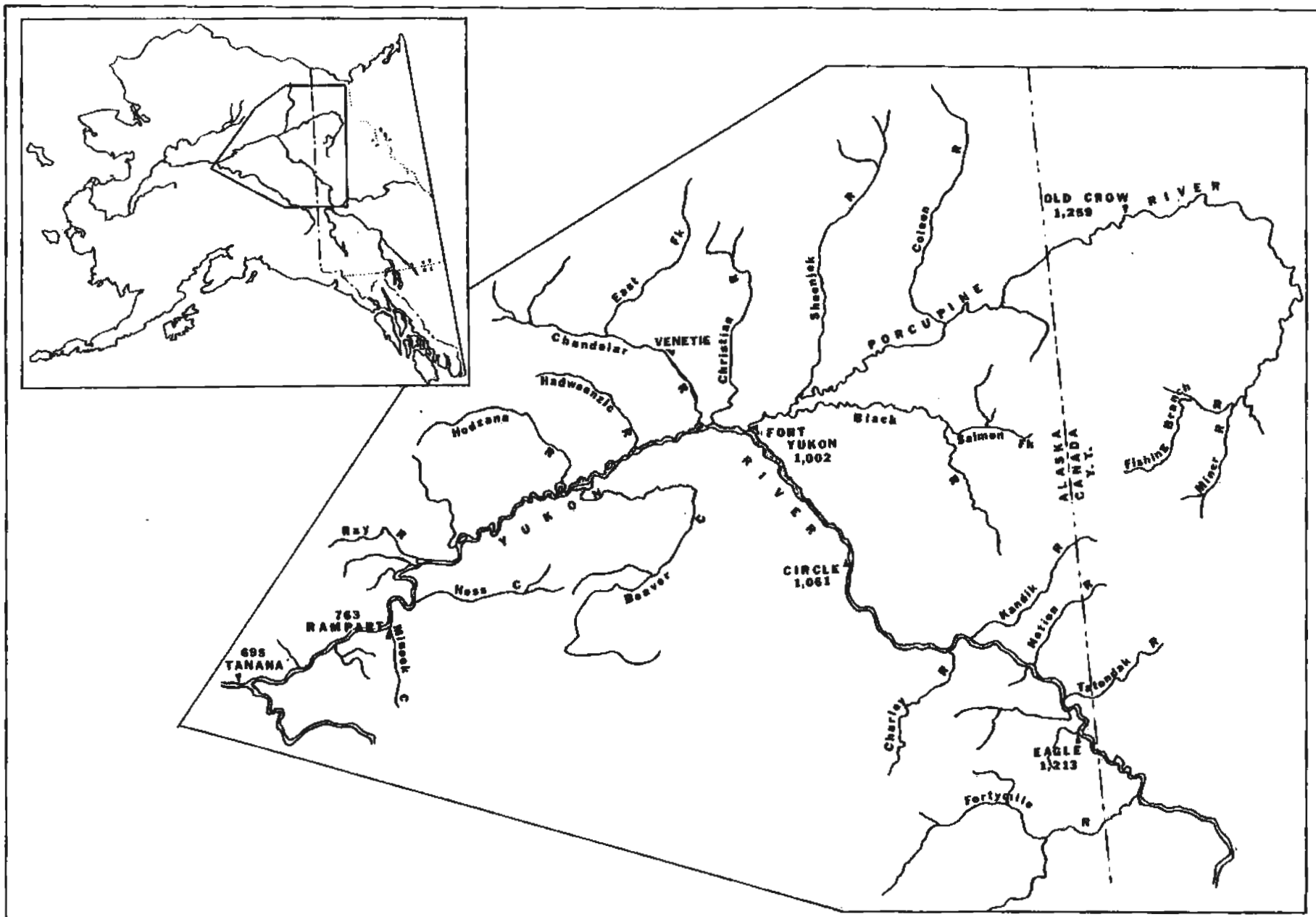

Figure 5. The middle Yukon River and Porcupine River drainage.

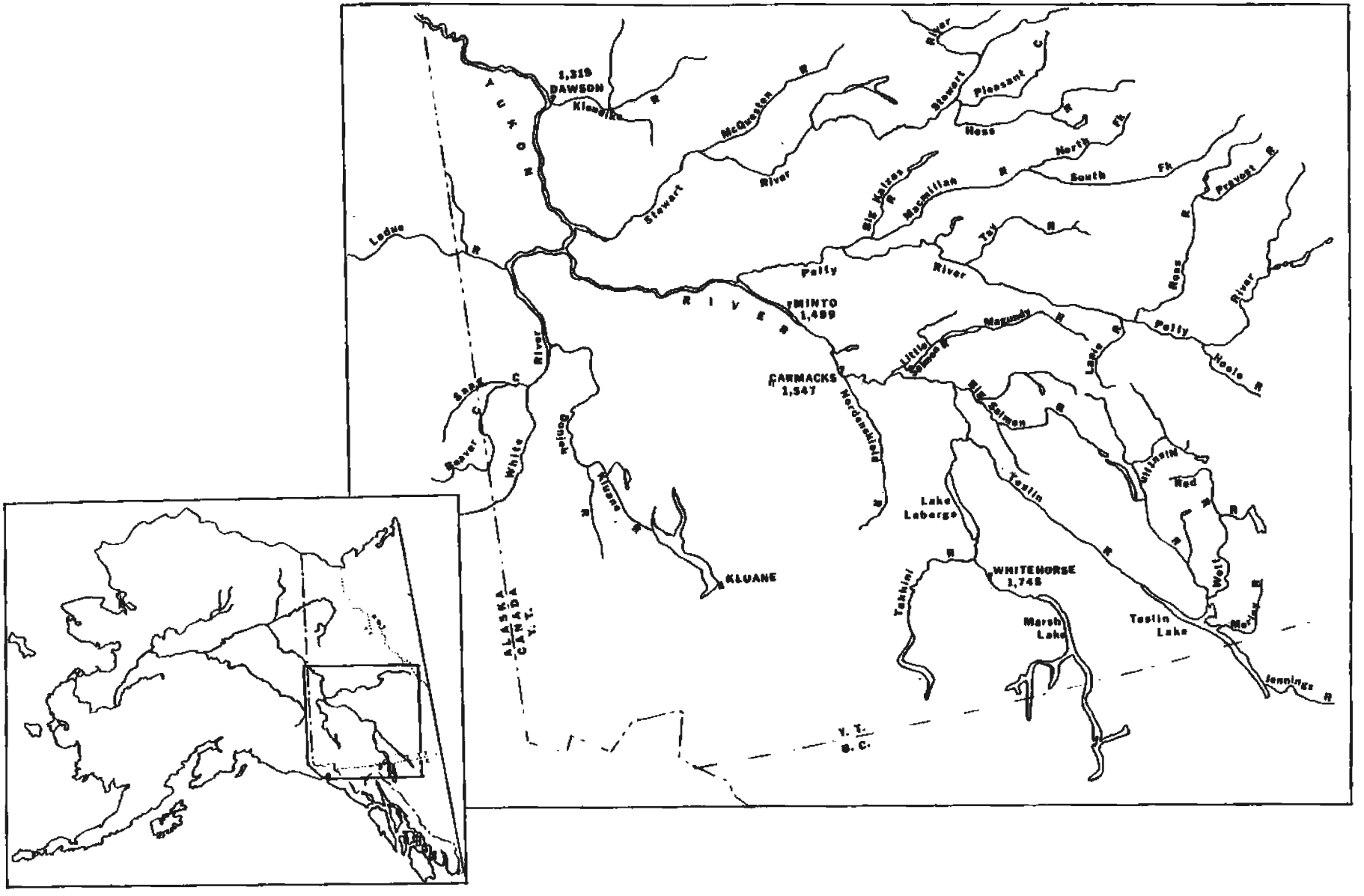

Figure 6. The upper Yukon River drainage.

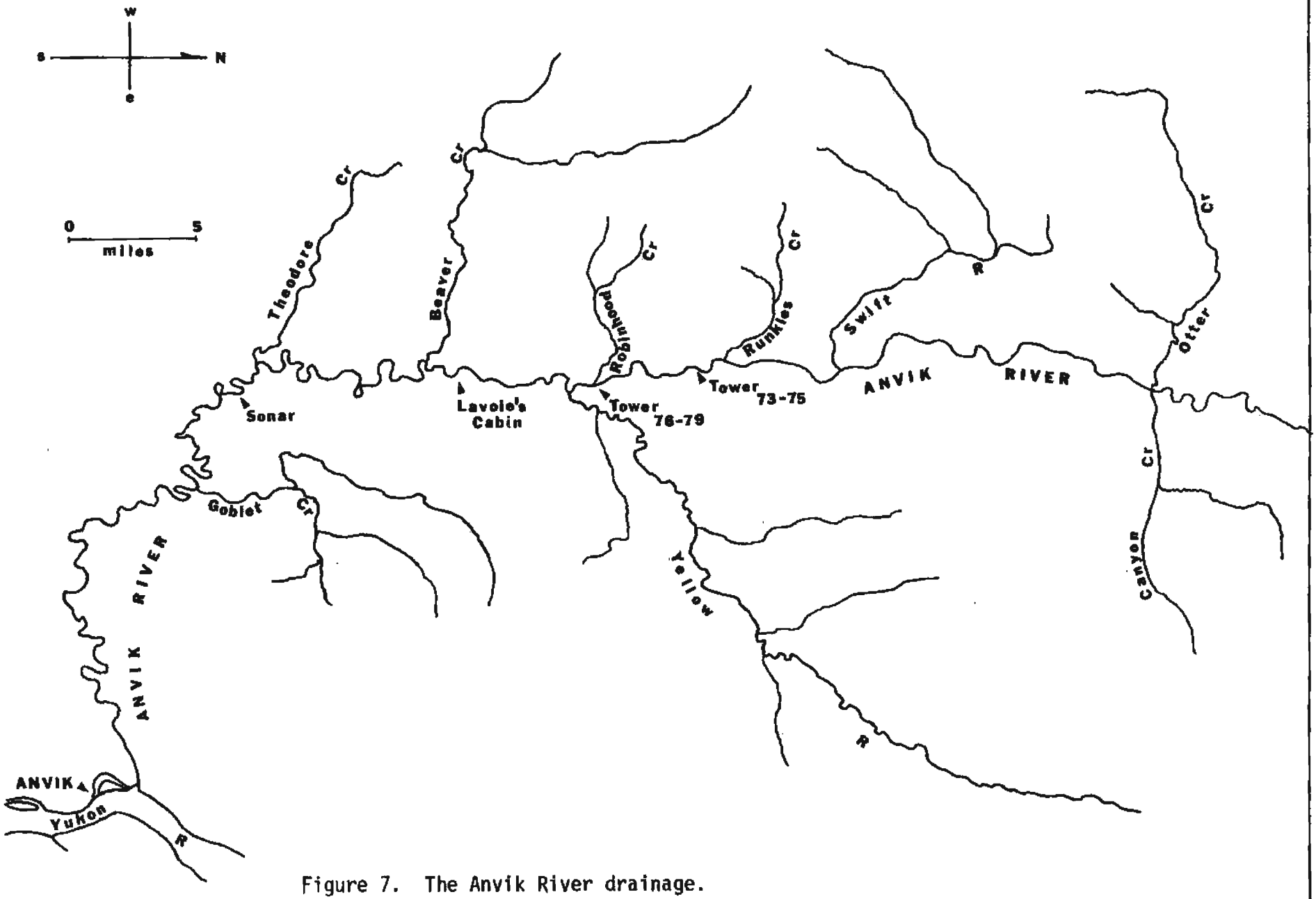

Figure 7. The Anvik River drainage.

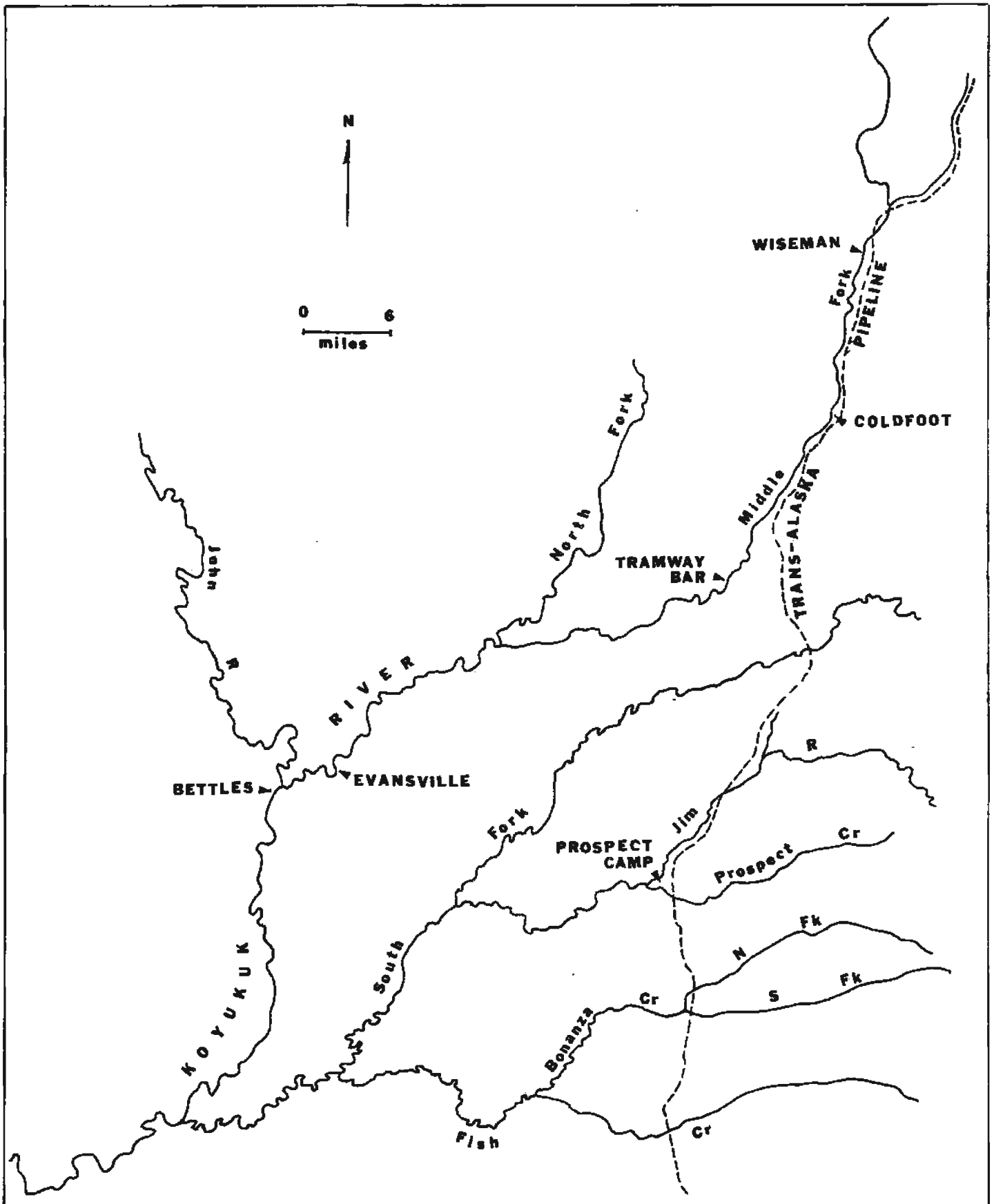

Figure 8. The South and Middle Fork Koyukuk River drainage.

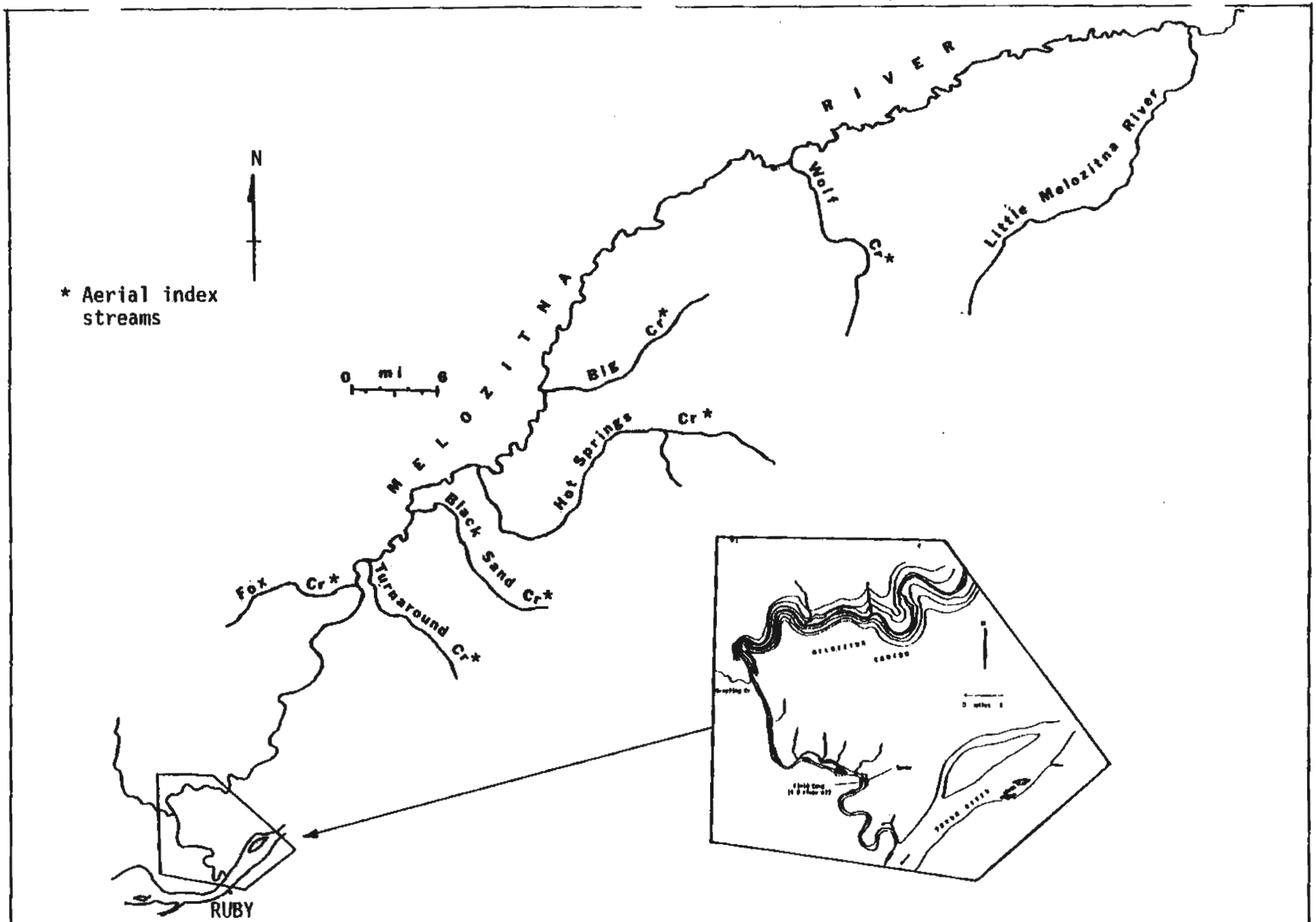

Figure 9. The Melozitna River drainage.

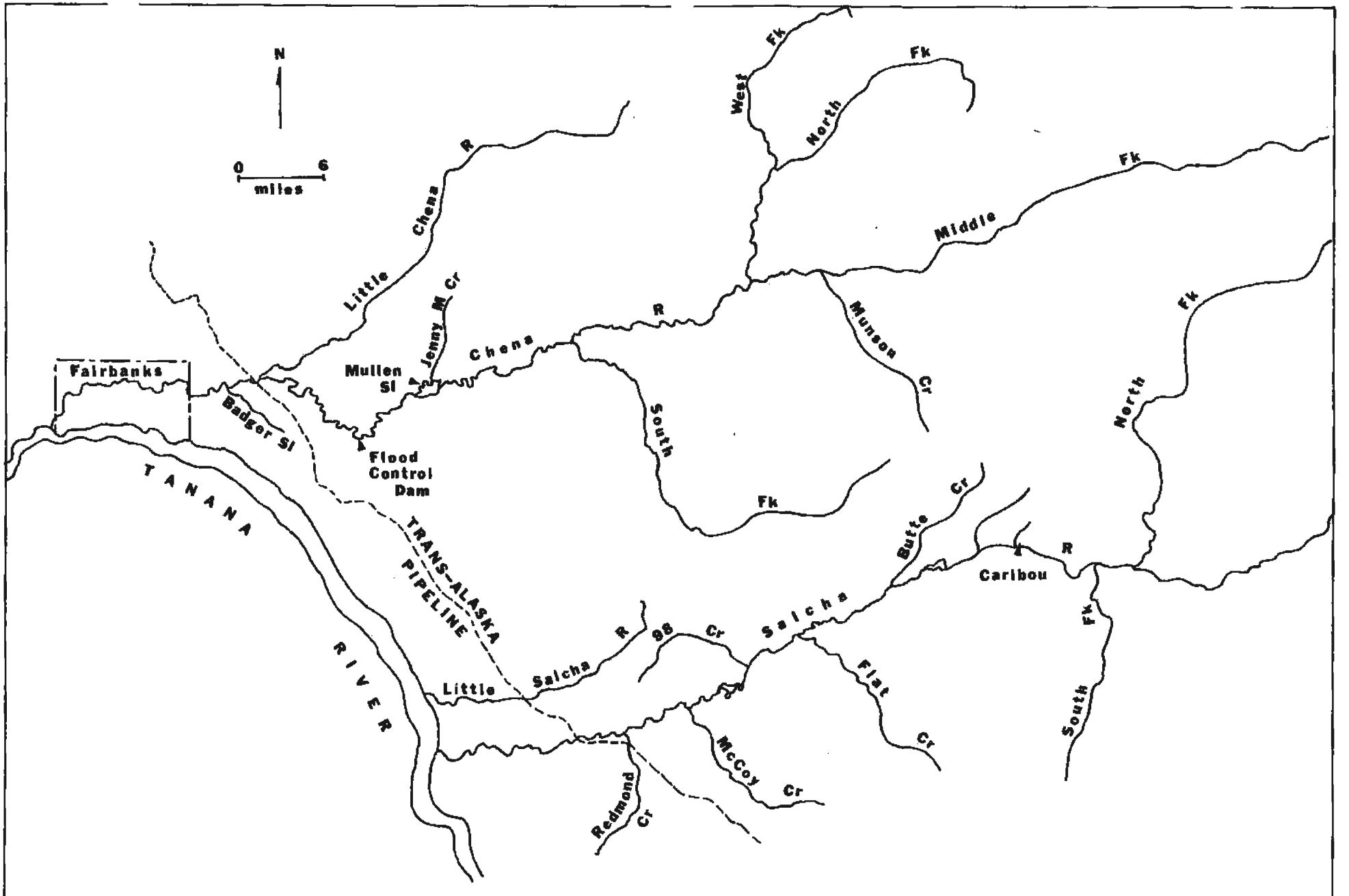

Figure 10. The Chena and Salcha River drainages.

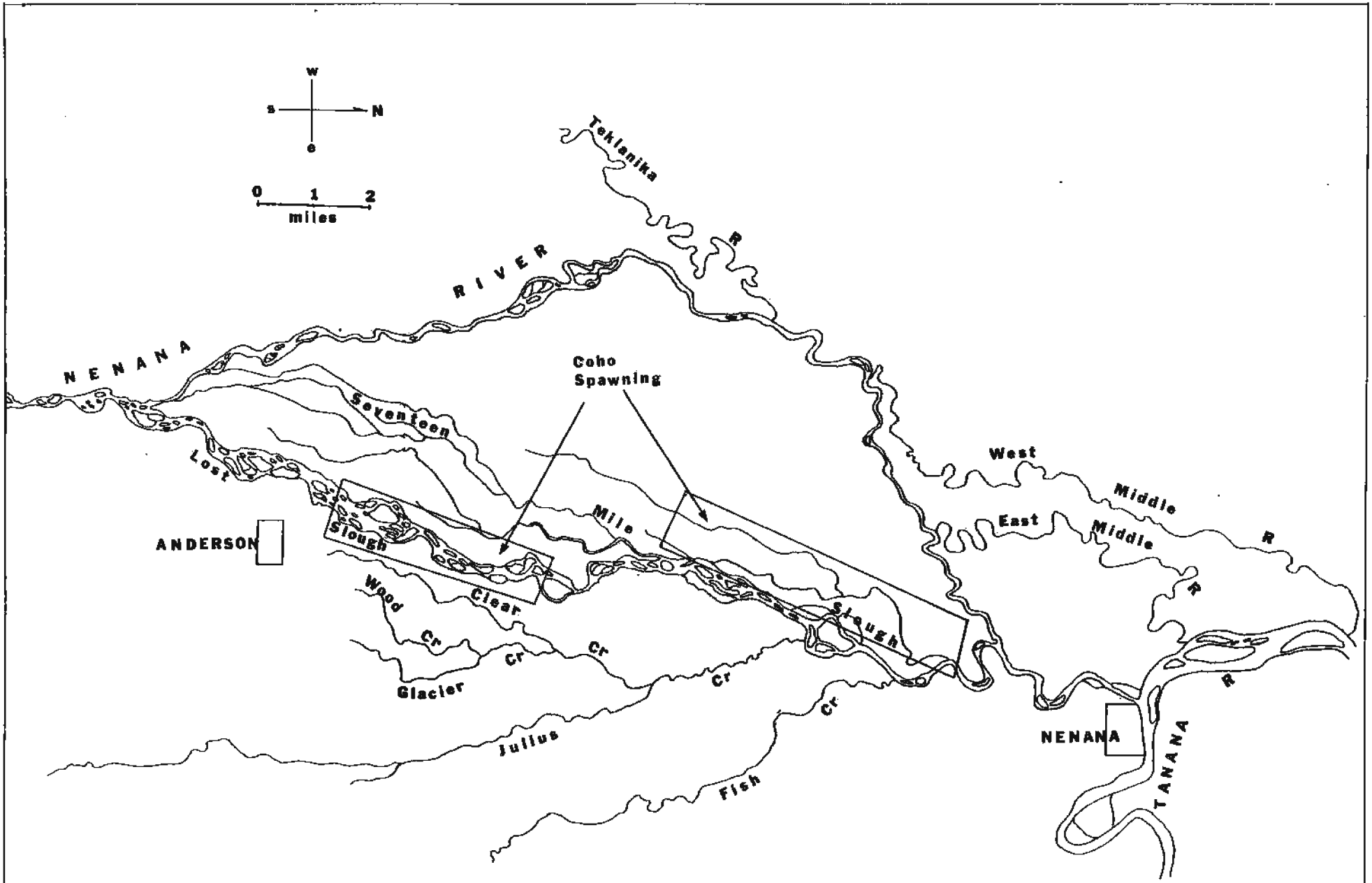

Figure 11. Salmon spawning areas in the lower Nenana River drainage.

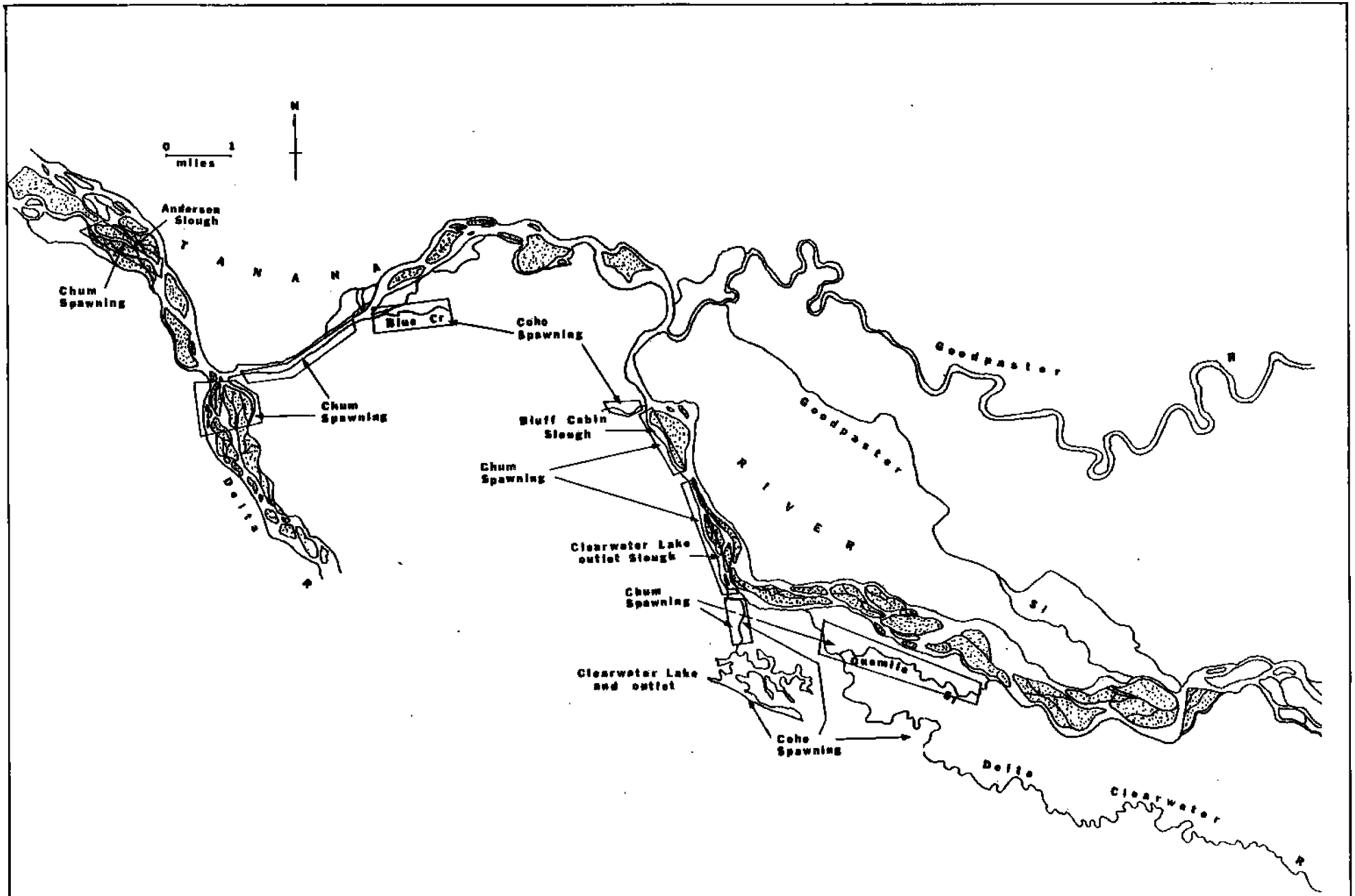

Figure 12. Salmon spawning areas in the main stem Tanana River near Big Delta.

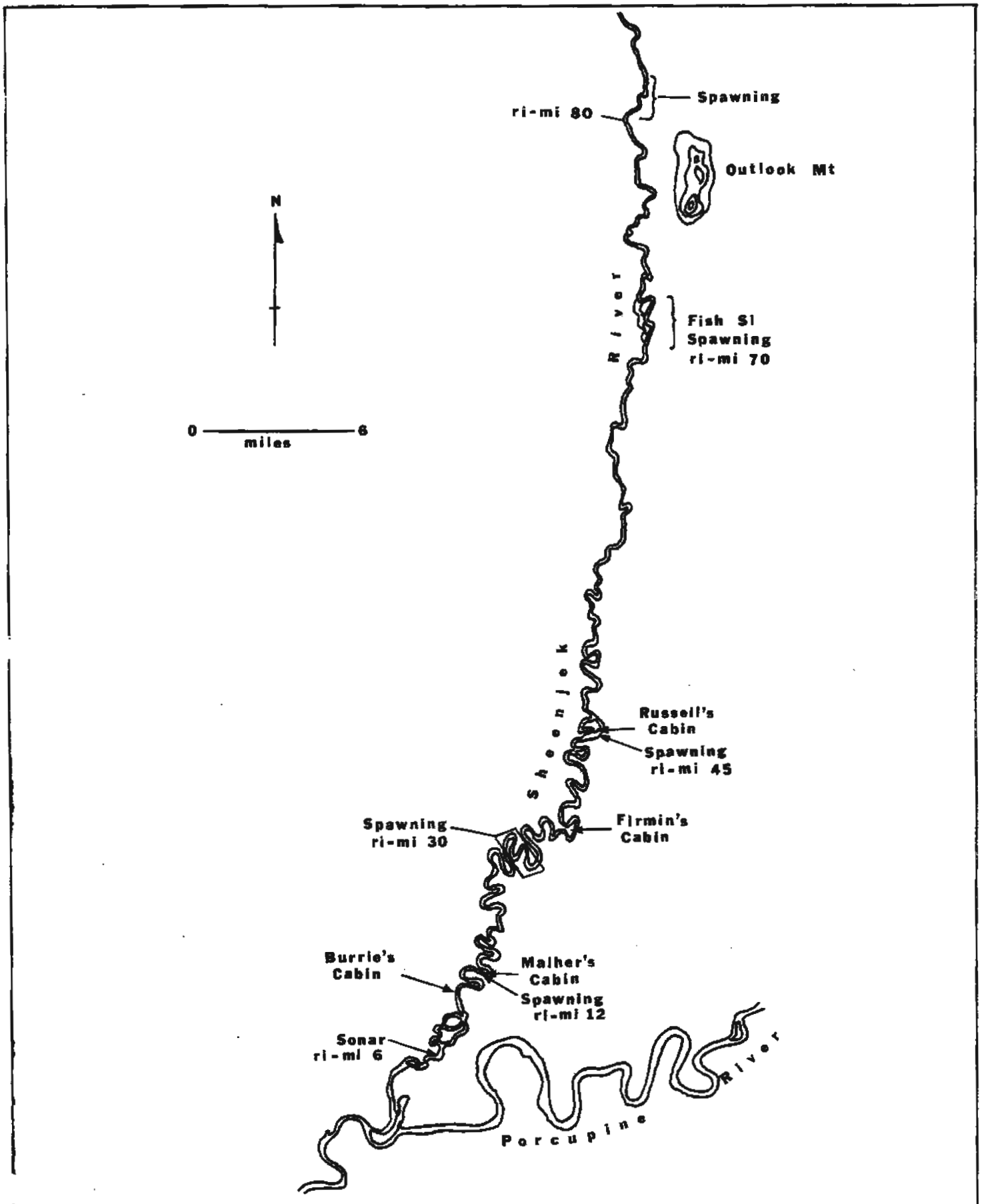

Figure 13. Salmon spawning areas in the lower Sheenjek River.